

**REMARKS**

1. The Examiner has rejected claims 1-10 under 35 U.S.C. 102 as being anticipated by the Ray reference.

With respect, the Applicant traverses. Claim 1 has been amended to clarify that the pre-fired porosity of the seal is between about 25% to about 50%, which porosity increases on firing to about 35% to about 60%. Thus, the seal has an increased porosity from the tape cast pre-fired seal. The seal remains unsintered. Support for the amendment may be found in para. [0041] of the specification and the claims as filed.

The Ray reference discloses a sintered ceramic matrix composite which is intended to be fully dense. As stated in column 2, lines 44-47;

The present invention solves this problem by providing a system wherein the formation of ceramic during sintering has a volume expansion which is effective in reducing or eliminating porosity.

The product is described as being 99% dense (see column 3, line 65-66).

Thus, the seal claimed in claim 1 differs significantly from the product described in the Ray reference in that it is unsintered and highly porous. There may be an intermediate phase before sintering where porosity exists, but Ray identifies this phase as being undesirable and teaches that it is necessary to reduce or eliminate porosity.

Thus, claim 1 is submitted to be novel and inventive in light of the Ray reference, in that Ray teaches away from the novelty of claim 1. Claims 2-9 are dependent on claim 1.

2. The Examiner has rejected claims 1, 2 and 7-10 as being anticipated by the Nakano reference.

The Applicant respectfully traverses. Claim 1 has been amended as recited above, to specify the level of porosity in the seal.

Nakano discloses a reinforced ceramic where porosity has been reduced as much as possible. As stated in column 1, lines 61-65:

For the purpose of producing ceramics which are reinforced with densely interwoven three-dimensional fibers, therefore, it is necessary that the number of such pores in the composite should be decreased to the fullest extent possible.

The material disclosed in Nakano is designed to have as few pores as possible, and an exemplary material was stated to be 15% porous (see column 6, line 42).

Thus, Nakano fails to teach a seal which has the porosity claimed in claim 1. Furthermore, the porosity of the claimed seal increases on firing, and no attempt is made to combat that increase after the pre-fired seal is formed. Therefore, Nakano teaches away from the claimed invention, in that Nakano specifies that porosity should be decreased to the fullest extent possible.

Therefore, it is submitted that claim 1, and all its dependent claims are novel and inventive in light of the Nakano reference.

3. The Examiner has rejected claims 1-10 as being obvious over Ritland in view of De Jager.

With respect, the Applicant traverses. Both Ritland and De Jager fail to teach the highly porous ceramic seal claimed in claim 1. Furthermore, the ceramic body taught by Ritland is sintered, unlike the unsintered seal of claim 1.

Ritland discloses a green ceramic body, and a ceramic phase which may be porous. However, the porous ceramic body has no identified use, and is only an intermediate phase in the formation of the ceramic-metal composite material which is the product described in Ritland. In the formation of this product, the porosity of the ceramic body is infiltrated by a metal to create an essentially non-porous material. Again porosity is undesirable in the end product.

De Jager similarly is concerned with eliminating porosity. The final step in the method described by De Jager is as stated in column 3, line 55-56: "(c) partly or completely filling the voids and cavities with matrix material." The end result is a dense composite material (see column 3, line 9).

Therefore, because both Ritland and De Jager teach away from the porosity of the claimed seal in the present application, in that in both cases, there is a desire to reduce or eliminate porosity in the ceramic product.

## **CLAIMS LISTING**

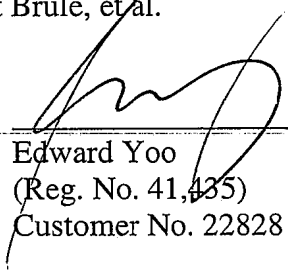
Applicant noticed that a typographical error was introduced into the claims listing during a previous amendment. That error ("pre-fitted" instead of "pre-fired") has been corrected. It is believed that no amendment is deemed to be have been made as the affected claims are as-filed.

**CONCLUSION**

Applicant respectfully submits that claims 1-10 are now in condition for allowance, and allowance is respectfully requested.

Respectfully submitted,  
Robert Brule, et al.

By



Edward Yoo  
(Reg. No. 41,435)  
Customer No. 22828